

## **ARTICLE X. BUFFERING, SCREENING, & LANDSCAPING REQUIREMENTS**

### **Section 10.1                      Purpose of Buffering/Landscaping Requirements**

The purpose of this Section is to establish minimum requirements and standards for landscaping and buffering to promote public safety, privacy, and well-being and to protect an abutting property from less desirable characteristics of the property for which buffering is required due to a dissimilar district, use, and/or primary transportation route. It is also intended to protect and preserve the appearance, character, and value of property and surrounding neighborhoods, provide for temperature modification and shading, and to mitigate adverse visual effects, overhead lighting, wind and dust, and increased activity associated with urban development.

(Note: See Article V, Section 5.3 for Special Landscaping Requirements for the Roadway Overlay District and Article VI, Special Requirement #3, #37, & #40 for landscaping and buffering requirements for Group Residential Districts, Traditional Neighborhood Developments, and Single-Family Attached Housing Districts).

All trees and shrubs used for compliance with this Section should be selected from the Recommended Tree Species List, found in Section 10.13, unless otherwise noted. A list of non-recommended trees can be found in Section 10.14.

### **Section 10.2                      Definitions**

Canopy (Overstory) Tree. A species of tree which normally grows to a mature height of 40 feet or more with a minimum mature crown width of 30 feet.

Understory Tree. Trees that grow beneath the overstory. A species of tree which normally grows to a mature height of 15 to 35 feet.

Shrub. A low, usually several-stemmed woody plant. A shrub must be a minimum of 18 inches at planting and reach a minimum height of 36 inches within 3 years of planting.

(See Article XVII for additional definitions pertaining to this Article).

### **Section 10.3                      Roadside Landscaping Requirements**

All parking lots containing 10 or more parking spaces shall include a minimum 10 foot wide maintained natural or planted buffer yard to screen the parking lot from all adjoining public road rights-of-way.

The required roadside buffer yard shall contain at least 1 canopy tree for each 40 linear feet of road frontage and each tree shall be a minimum of 8 feet in height and 2 inches in caliper when initially planted. Each tree shall be a species which can be expected to attain a minimum height of 40 feet and have a crown width of 30 feet or greater at maturity.

The required buffer yard shall also contain shrubs planted at a rate of 15 per 100 linear feet of road frontage.

All portions of the roadside buffer yard not planted with trees or shrubs or covered by a wall or other barrier shall be planted with grass, ground cover, or natural mulch of a minimum depth of 3 inches.

#### **Section 10.4**                      **Landscaping in Parking Areas**

Each off-street parking area designed for 20 or more spaces, which has been issued a zoning permit after the effective date of this Section and each area to which spaces are added totaling 20 or more spaces after the effective date of this Ordinance shall have provided and maintained 1 planting area for every 20 spaces constructed. Areas designed and designated for truck maneuvering are exempt from the requirement.

Each planting area shall have an unobstructed width dimension of not less than 7½ feet and shall not be less than 110 square feet in area. Each planting area shall be protected by curbing, bollards, or parking barriers and contain at least 1 canopy tree.

Planting areas shall be located within the parking area and islands, or around the perimeter of the parking areas within 16 feet of the pavement or curb. At least 50% of the planting areas shall be islands within parking areas.

#### **Section 10.5**                      **Buffering/Screening of Adjoining Incompatible Land Use**

The Recommended Tree Species List, found in Section 10.13, identifies trees that are ideally used as a buffer.

##### **Multi-Family & Single-Family Attached Housing Residential Uses**

Whenever 2 or more multi-family or single-family attached housing buildings or 5 or more multi-family residential or single-family attached dwelling units are proposed to be located directly abutting property which is used for single-family residential purposes or which is zoned for single-family residential use, the multi-family use shall provide screening in accordance with the following standards:

1. A minimum 20 foot perpetually maintained natural or planted buffer yard shall be provided along all property lines directly abutting a single-family used or zoned lot.
2. The buffer yard shall contain 3 canopy trees and 5 understory trees per 100 linear feet of buffer yard. Canopy trees shall be a minimum of 8 feet in height and 2 inches in caliper when planted. Understory trees shall be a minimum of 4 feet high and 1 inch in caliper when planted.
3. The buffer yard shall also contain 15 shrubs per 100 linear feet of buffer yard.

4. All portions of the buffer yard not planted with trees or shrubs or covered by a wall or other barrier shall be planted with grass, groundcover, or natural mulch of a minimum depth of 3 inches.

#### Commercial/Office Uses

Whenever a proposed commercial/office use is to be located on a property that adjoins a residential use or residentially zoned lot, the commercial/office use shall provide screening in accordance with the following standards:

1. A minimum 25 foot maintained natural or planted buffer yard shall be provided along all property lines directly abutting a residentially used or zoned lot.
2. The buffer yard shall contain 3 canopy trees and 7 understory trees per 100 linear feet of property line. Canopy trees shall be a minimum of 8 feet in height and 2 inches in caliper when planted. Understory trees shall be a minimum of 4 feet high and 1 inch in caliper when planted.
3. The buffer yard shall also contain 25 shrubs per 100 linear feet of buffer yard.
4. All portions of the buffer yard not planted with trees or shrubs or covered by a wall or other barrier shall be planted with grass, groundcover, or natural mulch of a minimum depth of 3 inches.

#### Industrial Uses:

Whenever a proposed industrial use is to be located on a property that adjoins a residential use or residentially zoned lot, the industrial use shall provide screening in accordance with the following standards:

1. For property zoned M-1, a minimum 50 foot maintained natural or planted buffer yard shall be provided along all property lines directly abutting a residentially used or zoned lot.
2. For property zoned M-2, a minimum 30 foot maintained natural or planted buffer yard shall be provided along all property lines directly abutting a residentially used or zoned lot. In addition to this buffer, a 20 foot building setback from the buffer yard must be maintained.
3. The buffer yard shall contain 4 canopy trees and 10 understory trees per 100 linear feet of property line. Canopy trees shall be a minimum of 8 feet in height and 2 inches in caliper when planted. Understory trees shall be a minimum of 4 feet high and 1 inch in caliper when planted.
4. The buffer yard shall also contain 33 shrubs per 100 linear feet of buffer yard.

5. All portions of the buffer yard not planted with trees or shrubs or covered by a wall or other barrier shall be planted with grass, groundcover, or natural mulch of a minimum depth of 3 inches.

## **Section 10.6**                      **Alternative Screening Methods**

Under certain circumstances the application of the standards delineated in this Section may be either inappropriate or ineffective in achieving the purposes of this Ordinance. When screening is required by this Section or by other provisions of this Ordinance and the site design, topography, unique relationships to other properties, lot configuration, spatial separation, natural vegetation, or other special considerations exist relative to the proposed development, the developer may submit a specific plan for screening to the Zoning Administrator. This plan must demonstrate how the purposes and standards of this Ordinance will be met by measures other than those listed in this Section. If approved by the Zoning Administrator, the alternative screening plan may be utilized to meet the requirements of this Ordinance.

A combination of natural vegetation, fences, walls, and berms may be utilized to achieve the screening requirements of this Section provided that the following standards are met:

1. Walls (a minimum of 6 feet in height and constructed of masonry, stone, or pressure treated lumber) or an opaque fence (a minimum of 6 feet in height) may be used to reduce the widths of the buffer yards required in this Section. A chain link or similar type fence with screening is unacceptable.
2. Understory trees may be substituted for canopy trees if, in the opinion of the Zoning Administrator upon conferring with the electrical utility provider, a conflict exists with overhead utility lines.
3. Any berm utilized for screening purposes shall have a minimum height of 3 feet, a minimum crown width of 3 feet, and a side slope no greater than 3:1. The berm shall have the required amount of understory trees and shrubs as defined in this Section.

## **Section 10.7**                      **Protection of Existing Trees in Required Buffer Strips**

The preservation of existing trees that are proven to be healthy and appropriate for screening is mandatory in required buffer strips and is to be used as credit toward a portion of the buffer required by this Article.

## **Section 10.8**                      **Maintenance**

In order for any screening to fulfill the purpose for which it was established, it must be properly maintained. The owner of the property and any tenant on the property where screening is required will be jointly and severally responsible for the maintenance of all required screening materials. Maintenance includes actions necessary to keep screening materials healthy, neat, and orderly in appearance and free of litter and debris. Any live screening materials such as shrubs and trees which may die must be replaced in compliance with the minimum standards of this

Ordinance. All screening and landscaping areas must be protected from damage by motor vehicles or pedestrians which could reduce the effectiveness of the screening.

### **Section 10.9**                    **Obstructions Prohibited**

Landscaping and screening materials should not obstruct the view of motorists using any road, driveway, or parking aisle.

### **Section 10.10**                    **Guarantee in Lieu of Immediate Installation of Landscaping and Screening Materials**

It is recognized that land development occurs continuously and that vegetation used in landscaping or screening should be planted at certain times of the year to ensure the best chance of survival. In order to ensure compliance with this Ordinance and reduce the potential expense of replacing landscaping or screening materials which were installed in an untimely or improper fashion, the developer may provide an adequately secured performance bond or other security to ensure that all of the requirements of this Section will be fulfilled.

### **Section 10.11**                    **Screening of Dumpsters**

All solid waste storage facilities are to be enclosed and screened from the view of adjoining residences, residentially zoned lots, or road rights-of-way. Such screening may consist of natural vegetation, fences, walls, or berms and shall be installed, located, or constructed so as to create an effective screen and keep the dumpster from being viewed off-site. The screening shall be at least 2 feet taller than the highest point of the dumpster. All dumpsters shall be placed on a concrete pad that is large enough to provide adequate support and allows for drainage. The enclosure must have a gate to allow for access and security. The gates must be closed at all times except for when on-site users are discarding debris or when the designated trash pickup company is retrieving from the receptacle.

### **Section 10.12**                    **Screening of HVAC**

HVAC units, when ground mounted, must be located at the rear of the building or along the side where it cannot be seen from the front of the building. When HVAC is roof mounted sufficient screening is required to screen the unit(s) from the public view.

### **Section 10.13**                    **List of Recommended Tree Species for Planting**

The species below are suggested trees and shrubs based on their historical performance in our region. Other species may be used if approved in advance by planning staff.

### Canopy Trees

\* = may be used as buffer/screen

D = Deciduous

E = Evergreen

PS = Partial Shade

Common Name / Scientific Name 'Cultivar'	D/E	Height (feet)	Sun Exposure	Drought Tolerant	Comments / Features
Beech, American / <i>Fagus grandifolia</i>	D	50-80 ft	Sun / PS	No	Dense shade tree producing little undergrowth; long lived
Birch, River / <i>Betula nigra</i> 'Heritage'	D	40-70 ft	Sun / PS	No	Good in urban areas; helps prevent stream erosion
*Cedar, Deodar / <i>Cedrus deodara</i>	E	40-60 ft	Sun	Yes	Lower limbs touch ground; can be subject to winter injury
*Cedar, Eastern Red / <i>Juniperus virginiana</i>	E	30-50 ft	Sun	Yes	Good for screening; attracts birds; easy to transplant
Cypress, Bald / <i>Taxodium distichum</i>	D	50-90 ft	Sun	Yes	Good street tree; small leaves that do not require raking
*Cypress, Leyland / <i>X Cupressocyparis leylandii</i>	E	60-70 ft	Sun / PS	Yes	Maintains good shape; excellent screening
Ginkgo / <i>Ginkgo biloba</i> (GRAFTED MALE ONLY)	D	40-70 ft	Sun	Yes	Male avoids female's fruit issues; pest and disease free
Hackberry / <i>Celtis occidentalis</i>	D	40-60 ft	Sun	Yes	Withstands adverse conditions; witches broom can develop
*Magnolia, Southern / <i>Magnolia grandiflora</i>	E	50-80 ft	Sun / PS	Yes	Lower limbs touch ground, but help hide fallen leaves and fruit
Maple, Red / <i>Acer rubrum</i>	D	40-70 ft	Sun / PS	Yes	Valuable shade tree with bright colors; easily transplanted
Maple, Sugar / <i>Acer saccharum</i>	D	50-75 ft	Sun / PS	No	Excellent fall color; hard woods; prefer good soils
Oak, Laurel / <i>Quercus laurifolia</i>	E	50-70 ft	Sun / PS	Yes	Rapid growth; life span shorter than other oaks (50-70 years)
Oak, Live / <i>Quercus virginiana</i>	E	30-60 ft	Sun	Yes	Good street tree; magnificent and long lived
Oak, Sawtooth / <i>Quercus acutissima</i>	D	30-50 ft	Sun	Yes	Holds leaves in winter, but drops nuts; toughest of all oaks
Oak, Scarlet / <i>Quercus coccinea</i>	D	50-80 ft	Sun	Yes	Brilliant autumn color and rapid growth; good street tree
Oak, Shumard / <i>Quercus shumardii</i>	D	40-70 ft	Sun	Yes	Excellent shade tree with dark red fall color
Oak, Southern Red / <i>Quercus falcata</i>	D	70-90 ft	Sun	Yes	Excellent shade tree native to the piedmont
Oak, Willow / <i>Quercus phellos</i>	D	60-80 ft	Sun	Yes	Excellent shade tree with small, easy to clean up leaves

Common Name / Scientific Name 'Cultivar'	D/E	Height (feet)	Sun Exposure	Drought Tolerant	Comments / Features
*Pine, Austrian / <i>Pinus nigra</i>	E	40-60 ft	Sun	Yes	Tolerates urban conditions; dense dark green foliage
*Pine, Loblolly / <i>Pinus taeda</i>	E	30-60 ft	Sun / PS	Yes	Rapid growth; easy to transplant when young
Poplar, Tulip / <i>Liriodendron tulipifera</i>	D	60-90 ft	Sun	No	Stately, large tree valued for flowers and foliage
Sweetgum / <i>Liquidambar styraciflua</i> 'Rotundiloba'	D	60-95 ft	Sun / PS	Yes	Can cause litter problem except in 'Rotundiloba'; aggressive roots
Zelkova, Japanese / <i>Zelkova serrata</i>	D	50-80 ft	Sun / PS	Yes	Excellent shade tree with easy fall clean up; easy transplant

Where cultivars or varieties are listed, only that type should be used for Ordinance compliance.

### Understory Trees

\* = may be used as buffer/screen

D = Deciduous

E = Evergreen

PS = Partial Shade

Common Name / Scientific Name 'Cultivar'	D/E	Height (feet)	Sun Exposure	Drought Tolerant	Comments / Features
Cherry, Kwanzan / <i>Prunus serrulata</i> 'Kwanzan'	D	20-25 ft	Sun	No	Good color and no fruit; needs good soils; 25 year life span
Cherry, Yoshino / <i>Prunus X yedoensis</i>	D	20-40 ft	Sun	No	Excellent floral display; 15-20 year life span
*Cherry-Laurel, Carolina / <i>Prunus caroliniana</i>	E	20-40 ft	Sun / PS	No	Easy to transplant; good soils preferred
Crabapple / <i>Malus spp.</i>	D	15-25 ft	Sun	Yes	Attractive tree; falling fruit; best varieties - 'Centurion' and 'Zumi'
Dogwood, Flowering / <i>Cornus florida</i>	D	15-25 ft	PS	No	Keep away from heat sources like parking lots; needs good soil
Dogwood, Kousa / <i>Cornus kousa</i>	D	15-30 ft	Sun / PS	No	Blooms after leaves appear; more hardy than flowering dogwood
Hawthorn, Green / <i>Crataegus viridis</i> 'Winter King'	D	15-30 ft	Sun	Yes	Attractive blooms and fruit but, thorny
Hawthorn, Washington / <i>Crataegus phaenopyrum</i>	D	20-30 ft	Sun	Yes	Attractive blooms and fruit but, thorny
*Holly, Foster / <i>Ilex X attenuata</i> 'Fosteri'	E	15-30 ft	Sun / PS	Yes	Tolerates urban conditions; heavy fruit production
*Holly, Savannah / <i>Ilex X attenuata</i> 'Savannah'	E	20-30 ft	Sun / PS	Yes	Requires heavy fertilization for good leaf color

Common Name / Scientific Name 'Cultivar'	D/E	Height (feet)	Sun Exposure	Drought Tolerant	Comments / Features
Hornbeam, American / <i>Carpinus caroliniana</i>	D	20-30 ft	Sun / PS	Yes	Pest free; tolerates urban conditions; slow growth
Hornbeam, European / <i>Carpinus betulus</i>	D	40-60 ft	Sun / PS	Yes	Pest free; provides good shade; tolerates urban conditions
Magnolia, Sweetbay / <i>Magnolia virginiana</i>	E	10-60 ft	Sun / PS	No	Aromatic tree often found near water sources/wet soils
Maple, Hedge / <i>Acer campestre</i>	D	15-35 ft	Sun	Yes	Pest free; provides good shade; good hedge tree
Maple, Japanese / <i>Acer palmatum</i>	D	15-25 ft	Sun / PS	No	May suffer 'leaf scorch' with excess sun
Myrtle, Wax / <i>Myrica cerifera</i>	D	15-25 ft	Sun	Yes	Often grown in hedges for screening; can be cold sensitive
Pear, Aristocrat / <i>Pyrus calleryana</i> 'Aristocrat'	D	20-40 ft	Sun	Yes	Attractive spring bloom; limb structure stronger than 'Bradford'
Pear, Capital / <i>Pyrus calleryana</i> 'Capital'	D	20-40 ft	Sun	Yes	Attractive spring bloom; limb structure stronger than 'Bradford'
Pear, Redspire / <i>Pyrus calleryana</i> 'Redspire'	D	30-40 ft	Sun / PS	Yes	Attractive spring bloom; limb structure stronger than 'Bradford'
*Pine, Virginia / <i>Pinus virginiana</i>	E	15-40 ft	Sun	Yes	Susceptible to pine beetles if not kept healthy
Plum, Purpleleaf / <i>Prunus cerasifera</i> 'Atropurpurea'	D	15-25 ft	Sun	No	Rapid growth; produces fruit; 20-25 year life span
Redbud, Eastern / <i>Cercis canadensis</i>	D	20-30 ft	Sun / PS	Yes	Does well in full sun; purple blossoms in spring

Where cultivars or varieties are listed, only that type should be used for Ordinance compliance.

### Shrubs

\* = may be used as buffer/screen

D = Deciduous

E = Evergreen

PS = Partial Shade

Common Name / Scientific Name 'Cultivar'	D/E	Height (feet)	Sun Exposure	Drought Tolerant	Comments / Features
*Abelia, Glossy / <i>Abelia x grandiflora</i>	D	3-6 ft	Sun / PS	Yes	Less expensive than most evergreens; easy to grow
*Barberry, Mentor / <i>Berberis x mentorensis</i>	D	4-5 ft	Sun / PS	Yes	Little maintenance needed; dependable and adaptable plants
*Barberry, Wintergreen / <i>Berberis julianae</i>	E	6-8 ft	Sun / PS	Yes	Good screen or barrier, few pest problems



<b>Common Name / Scientific Name 'Cultivar'</b>	<b>D/E</b>	<b>Height (feet)</b>	<b>Sun Exposure</b>	<b>Drought Tolerant</b>	<b>Comments / Features</b>
Elaeagnus, Thorny / <i>Elaeagnus pungens</i>	E	10-15 ft	Sun / PS	Yes	Flowers appear in fall; fruit ripens in spring
*English Laurel / <i>Prunus laurocerasus</i>	E	10-18 ft	Sun / PS	Yes	Avoid excessive fertilizer; can be severely pruned
*Euonymus, Winged / <i>Euonymus alatus</i>	D	15-20 ft	Sun	Yes	Takes well to pruning and shearing; brilliant red in fall
*Forsythia, Border / <i>Forsythia x intermedia</i>	D	8-10 ft	Sun / PS	Yes	Transplants well; blooms appear before leaves
*Holly, Burford / <i>Ilex cornuta 'Burfordii'</i>	E	8-15 ft	Sun	Yes	Widely used as a small tree or hedge
*Holly, Inkberry / <i>Ilex glabra</i>	E	6-9 ft	Sun / PS	Yes	Leaves may discolor in cold winters; drought tolerant
Holly, Japanese / <i>Ilex crenata</i>	E	8-12 ft	Sun	Yes	Has a black berry largely hidden by leaves
*Holly, Lusterleaf / <i>Ilex latifolia</i>	E	8-20 ft	Sun / PS	Yes	No pest problems; requires male plant to produce berries
*Hydrangea, Oakleaf / <i>Hydrangea quercifolia</i>	D	4-6 ft	Sun / PS	Yes	Excellent flowers and fall foliage; needs mulch to cool root system
*Laurestinus / <i>Viburnum tinus</i>	E	6-12 ft	Sun / PS	Yes	Valuable evergreen barrier shrub; white spring flowers
Loropetalum / <i>Loropetalum chinensis</i>	E	6-12 ft	Sun / PS	Yes	Can be grown as a small tree; can be pruned after flowering
Mahonia, Leatherleaf / <i>Mahonia bealei</i>	E	5-7 ft	PS	Yes	Too much sun can bleach out spring color; dependable shrub
Nandina / <i>Nandina domestica</i>	E	4-8 ft	Sun / PS	Yes	Oriental feel with creamy white flowers
Photinia, Chinese / <i>Photinia serrulata</i>	E	7-12 ft	Sun / PS	Yes	Disease resistant, but susceptible to mildew
*Podocarpus / <i>Podocarpus macrophyllus 'Maki'</i>	E	8-12 ft	Sun / PS	Yes	Excellent screen; can withstand urban environments
*Privet, Japanese / <i>Ligustrum japonicum</i>	E	6-12 ft	Sun / PS	Yes	In leaf all year; requires moist soils; used as shrub and hedge
Spirea, Bridleweath / <i>Spiraea prunifolia 'Plena'</i>	D	5-9 ft	Sun	Yes	Large crops of white flowers in spring; red-orange fall colors
Spirea, Reeves / <i>Spiraea cantoniensis</i>	D	4-6 ft	Sun / PS	Yes	White flowers appears in dense, bouquet-like clusters
*Spirea, Vanhoutte / <i>Spiraea x vanhouttei</i>	D	5-8 ft	Sun / PS	Yes	Grows rapidly; good screen; durable and dependable

<b>Common Name / Scientific Name 'Cultivar'</b>	<b>D/E</b>	<b>Height (feet)</b>	<b>Sun Exposure</b>	<b>Drought Tolerant</b>	<b>Comments / Features</b>
Wax-Myrtle / <i>Myrica cerifera</i>	E	10-15 ft	Sun / PS	Yes	Thrives in practically any environment; fixes atmospheric nitrogen

Where cultivars or varieties are listed, only that type should be used for Ordinance compliance.

#### **Section 10.14      Tree Species Not Recommended**

These trees have undesired characteristics or have performed poorly in our regions.

<b>Common Name / Scientific Name</b>	<b>Poor Characteristic(s)</b>
Ash, Green / <i>Fraxinus pennsylvanica</i> "Marsh. Seedless"	Susceptible to fungal disease
Box Elder / <i>Acer negundo</i>	Aggressive, shallow roots, weak wood
Catalpa / <i>Catalpa bignonioides</i>	Weak wood
Elm, Siberian / <i>Ulmus pumila</i>	Weak wood, slime flux
Honeylocust / <i>Gleditsia spp.</i>	The region is too warm for this species
Maple, Norway / <i>Acer platanoides</i>	The region is too warm for this species
Maple, Silver / <i>Acer saccharinum</i>	Aggressive, shallow roots, weak wood
Mulberry / <i>Morus spp.</i>	Messy fruit, shallow roots
Russian Olive / <i>Elaeagnus angustifolia</i>	Poor form, disease prone
Pear, Bradford / <i>Pyrus calleryana</i> 'Bradford'	Genetic flaw, splits apart
Pine, White / <i>Pinus strobus</i>	Disease and insect problems
Princess Tree / <i>Paulownia tomentosa</i>	Weedy tree, messy, weak wood
Tree-of-Heaven / <i>Ailanthus altissima</i>	Weedy tree, weak wood, undesirable odor